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ON CENSUS METHODS.

THE present enumeration of the people of the United States, which will be known as the eleventh census, is the greatest piece of statistical work undertaken in modern times. It will cover sixty-five million people, scattered over more than three million square miles of territory; while the variety of information sought will be more exhaustive, and the proposed analysis of results more elaborate, than anything that has ever been attempted in America or Europe. A census is in itself a matter of profound interest. It is most commonly thought of, perhaps, as a sort of national "taking of stock," to show the progress of the community in population, wealth and well-being. From a scientific point of view, however, it is much more than that. It is an opportunity for sociological observation, which comes only once in ten years and which must be utilized punctually and to its fullest extent; for that particular opportunity will never return. It is like a transit of Venus or a total eclipse of the sun, for the observation of which astronomers make preparations months beforehand and travel thousands of miles. Moreover, each successive census makes one of a series, and if it is defective or distorted, it will, for all time to come, be a disturbing element in comparisons of social growth and development.¹

The importance of these considerations is often lost sight of in this country, on account of the lack of scientific interest in statistical work and of scientific criticism of the results. In England a somewhat more favorable condition of things seems to

¹ How such an opportunity for sociological observation may be lost, and lost forever, is seen in the failure to take a census in the state of New York in 1885, owing to the quarrel between the governor and the legislature. How such an opportunity may be imperfectly utilized is seen in the defeat of the proposed census law of 1870, by which the ninth census would have been taken according to the improved methods adopted ten years later,—the defeat being due to the personal feeling between Senators Sumner and Conkling. See *The Nation*, vol. x, p. 116.

exist. The Royal Statistical Society of London takes an active interest in all such work and numbers among its members many government officials.¹ On the continent, the numerous statistical journals are constantly discussing statistical methods and the value of the official returns. The old statistical congresses, which formerly met every few years, attempted to bring about a uniform system of classification in different countries ; and the new International Statistical Institute has undertaken the same work. At the head of the statistical bureaus in Europe are placed men of the highest scientific attainments, such as Farr, Ogle and Giffen in England ; Engel, Von Mayr, Becker, Böhmer, Körösi and Keleti in Germany and Austria ; Bodio in Italy, Bertillon in France, and many others. None but a scientific man could stand the stream of criticism that assails the work ; while not only does the community get the best service, but science is also advanced.

In this country no such interest is felt. No economic association or statistical society petitions Congress in regard to the scientific scope of the census.² Additions are made to the schedules by Congress, but they are either for political effect or are due to momentary interest in a particular question, and they are often forced upon the superintendent without regard to their permanent usefulness or to the danger of over-burdening

¹ The society "has since the year 1840 appointed a committee before every census to inquire into the various questions and report to the council. In consequence of the reports of these committees, the society has from time to time made important representations to the government of the day, which, while they have disappointed many by not effecting all that the society had hoped to achieve, yet have resulted in very important improvements. The most notable was in 1840, when the action of the society led the government to withdraw its bill and introduce another, modelled on the lines suggested by the council." *Journal of the Royal Statistical Society*, vol. 52, p. 440; see also vol. 51, p. 816.

² It is a curious fact that at the beginning of the century very considerable interest seems to have been felt in the scientific possibilities of the census. Just before the enumeration of 1800, the American Philosophical Society, of which Thomas Jefferson was president, memorialized Congress recommending a more extended age classification, distinction between natives, foreign-born and aliens, distinction of occupations and professions, etc., the society believing the "duration of life to be longer here and the increase of population more rapid than elsewhere." The Connecticut Academy of Arts and Sciences, of which Timothy Dwight was president, petitioned for the same things in order to "collect materials for a complete view of the natural history of man

the enumerators.¹ No adequate criticism follows the census. Disappointment is often felt at local results, and charges of partiality or even of corruption are freely made, because the returns do not show the population or the industrial activity which the imagination of a particular community had fondly pictured.² The census office immediately assumes an attitude of defence, because its integrity is assailed. It learns nothing, because the criticism is on results, not on methods; that is, on its honesty, not on its skill. No new light is thrown on the subject. The superintendent of the next census, if he is of a combative disposition, simply presses forward on the old lines, prepared to endure the abuse which will follow; or, he unconsciously relaxes the severity of his methods, in order to get results that will "satisfy the people."

This sort of criticism, besides being grossly unjust to honest public officials, is in two respects misleading and injurious. In the first place, it entirely ignores the great question of the proper scope of a census. The most important result of experience in census-taking is the knowledge as to what a census can and ought to do, and what it cannot do and ought not to attempt. A distinguished French statistician has enunciated certain dicta on this subject which are well worthy of consideration, both by census officers and by the general public—including our law makers.³ There are certain facts which, owing to the nature of things or to the particular disposition of a people, cannot be ascertained. Questions touching personal religious belief or opinion, as well as questions in regard to personal indebtedness or private income, are apt to be resented as inquisitorial. Further, there are certain facts which can be ascertained but

and society in this country." Congress paid no attention to either petition. Garfield Committee Report, Second Session, 41st Congress, House Reports, vol. i, no. 3, p. 35.

¹ Scientific criticism would probably reduce rather than increase the number of inquiries. The schedule is much too large and demands detailed answers which are a burden to both the enumerator and the enumerated. See Walker, article *Census*, *Encyclopædia Britannica*. Yet every superintendent has to fight to keep additional inquiries off the schedule, especially such as would awaken suspicion or antagonism and injure the whole return.

² See Tenth Census, vol. ii, Introduction, p. xl.

³ Levasseur, *La Population Française*, reviewed *infra*.

which are not worth knowing; as, for example, the personal habits of individuals. Finally, there is a great list of things which can be known and which would be interesting, but which are not worth the expense, chiefly because the money can be better spent in other ways. It is not easy to determine whether an inquiry comes within one of these three categories or not; and it must be said that, in the present state of scientific and popular criticism in this country, our statisticians receive very little aid in solving the problem. Immersed as they are in practical work, it is greatly to their credit that they keep an open ear for such suggestions as come within their reach, and that they are ready to profit by them.¹

In the second place, the vulgar criticism lays no stress on the time and labor and skill necessary for scientifically "working up" the statistical material. It demands quick results. It is impatient of delay. Now, it is of course desirable that the general results of a census, such as the total population and those facts that are of immediate administrative value, should be made public as soon as possible; and that is always done in our census. It has sometimes been said that the tenth census, or at least certain parts of it, were unreasonably delayed, owing to miscalculations as to expense.² But the full value of a census is obtained only by careful, elaborate and skilful tabulation and analysis of the raw material. This requires time

¹ The schedules for the eleventh census show very distinctly with what care the officers have studied the experience of the tenth census, of the Massachusetts census of 1885, and of the Interstate Commerce Commission. The superintendent has shown great wisdom in securing the services of such men as Mr. Wm. C. Hunt, Dr. John S. Billings, Mr. Frank R. Williams, Prof. Henry C. Adams, Mr. Geo. K. Holmes and others, who have had previous experience or have made special study of the particular subjects entrusted to them. The need of a permanent census office is most keenly felt when one reflects that it is really only by accident that we enjoy the services of these men a second time.

² "These delays have, however, been very much exaggerated in popular estimation. The leading reports, those which were specially made up of purely statistical matter, were, with the single exception of that on mortality, published in 1883,—a date which, considering the greater scope of the work, compares favorably with the record of any previous census. The volumes thus published in 1883 were the two volumes of the Compendium, and, of the final quarto reports, the following: vol. i, Statistics of Population; vol. ii, Statistics of Manufactures; vol. iii, Statistics of Agriculture; vol. iv, Statistics of Transportation. The foregoing volumes comprised nearly every-

and thought. The real work of the census office begins after the schedules are safely housed in Washington. It is like a geological survey. The field work may extend over only a few weeks or months, but years may be necessary to extract the scientific results. Of the difficulties and vexations of this part of the census work the public has, and can have, no just appreciation. But the public should recognize that this is purely scientific work and should treat it accordingly. It should man its census office with the best scientific talent and then patiently await the result. On the face of it, we might even say that a sociological survey of sixty-five million people is a more difficult thing than a geological or a coast survey, and that it requires even more talent, thought and experience. But without being too much discouraged by this lack of scientific interest,—for which popular intelligence and the liberality of the government in meeting the financial needs of the office¹ afford a certain compensation,—let us examine the schedules of the new census, for the purpose of determining what scientific results we can justly expect and demand.

From a scientific point of view a census falls naturally into two parts. The first includes those facts that are of general sociological interest: statistics of population and everything pertaining directly to population—vital statistics, social statistics, *etc.* The second includes those that are of economic interest: statistics of agriculture, manufactures, transportation, wealth, taxation, indebtedness, *etc.* The main facts in regard to population are to be collected, in the coming census, on a family schedule containing some thirty questions, a half dozen of which might much better be omitted.² One inquiry de-

thing of a statistical character, with the exception of the mortality statistics before referred to, which it had been usual to publish in a census of the United States; while they contained over and above what had ever before been published in this line far more than the sum of all the omissions." Gen. Francis A. Walker, in *Quarterly Journal of Economics*, vol. ii, p. 141.

¹ See Carroll D. Wright, The Study of Statistics in Colleges. Publications of the American Economic Association, vol. iii, p. 6.

² The schedule covers the following points: number of families in a dwelling house; number of persons in a family; whether soldier or sailor in the Civil War, or widow of same; relationship to head of family; color; sex; age; conjugal condition; whether

mands a distinction between white, black, mulatto, quadroon and octoroon. A gentle scepticism may be indulged in as to whether either the individuals or the enumerators will be able to answer the question with the desired degree of refinement. The statistics of conjugal condition at the tenth census were never published; so that here we shall have new information. The inquiry, whether married within the census year, is intended to give us an approximate marriage-rate, which, in the absence of registration of marriages, will be of great interest, although it will be only an approximation. The inquiry as to number of children will also have great sociological interest, especially in reference to the comparative fruitfulness of American and foreign-born women. One of the most interesting features of the United States census has always been the information which it affords us regarding the foreign-born population. In no other country in the world is there such an opportunity to study different races and nationalities living side by side under the same conditions. The eleventh census promises to surpass the tenth in this respect; for it will give us place of birth, parent nativity, number of years in this country and whether naturalized or not. Besides the usual data concerning profession or occupation, an effort will be made to ascertain the number of months unemployed. How far this inquiry will give us accurate information as to industrial idleness is not easy to determine. The subject is so important that it is perhaps well to make the attempt, although it complicates the schedule by adding a question that cannot be answered without reflection. The school and illiteracy inquiries are an improvement on those of the tenth census, in that they distinguish two degrees of illiteracy, as well as inability to speak English.

The demand to be made on the census in regard to these

married during census year; mother of how many children, and number of children living; place of birth; place of birth of father and mother; number of years in the United States; naturalization; occupation; months unemployed; attendance at school; able to read; able to write; able to speak English — if not, the language or dialect spoken; whether diseased, blind, deaf and dumb, crippled, insane, *etc.*; whether prisoner, convict, homeless child or pauper; four inquiries as to ownership

returns is that they shall be analyzed and correlated in the most careful and exhaustive manner. The inquiries are numerous enough, — too numerous if anything ; and after millions of dollars have been expended in collecting the facts, these facts should be made to yield the greatest results. The number of possible combinations and permutations involved in the answers to these twenty-five or thirty questions is enormous. Take, for instance, our urban population : we shall want to have it analyzed according to age, sex, color and nationality ; as to length of time in this country ; whether naturalized or not ; occupation ; illiteracy ; diseased or defective ; conjugal condition, *etc.* If we take the prisoners, we shall want an equal variety of information. The same is true in regard to the blacks, the Irish, the children in factories, the women of child-bearing age, the miners or engineers. We demand of the census office that it shall work out these results in a careful, scientific spirit, regardless of the conclusions that may be deduced ; and especially that it shall not sacrifice this part of the work to more showy but really less valuable special investigations.

In regard to economic statistics, the demands we can make on the census are equally clear. In the first place, we shall have the general statistics of agriculture, fisheries, manufactures, mining and transportation. The gross figures as to cost of raw material, value of products, *etc.*, must be received with the usual large grain of allowance for the ignorance and indolence of the individuals making the answers, and the carelessness of the enumerators. The results will be approximate only ; in the nature of things they can be nothing else. Scarcely one farmer in a hundred keeps accurate books of his outgo and income, and the annual value of his garden-truck or his buttermilk is an unknown quantity. Among manufacturers there is often an indisposition to reveal the facts in regard to their business, or at least to take the trouble to ascertain them accurately. We

of home or farm and mortgage on same. In case of soldiers and sailors, defectives and delinquents, mortgaged homes or farms and deaths during the year, special schedules are filled out.

can demand, therefore, only general results, showing the progress of the community from one decade to another. On the other hand, there are some special inquiries which will be of great interest and in regard to which the census office has assumed a very grave responsibility, for the data furnished by it will be used in the solution of some of the most perplexing problems now confronting us. These investigations will be under the charge of special expert agents. And first a word as to the proper function of the expert agent in census work.

The expert and special agent business was very much overdone at the last census. Elaborate histories and descriptions of agricultural and mechanical processes were published, illustrated with thousands of expensive plans and cuts,—an undertaking which added greatly to the bulk of the volumes and consumed money which ought to have been devoted to working up the statistical data proper. The superintendent of the last census has fully explained why this was done in 1880, and has acknowledged the weakness involved in the procedure, so that we need not pursue the topic further.¹ But the superintendent of the eleventh census should understand that a repetition of the process is not to be tolerated, and he should hold his special agents down to the less exhilarating but more valuable purely statistical work.² The object of employing experts in statistical work is to control the returns. Here comes a manufacturer's return, for instance, which has been made out dishonestly or carelessly. The expert agent is the man who has enough knowl-

¹ "The Tenth Census was more than an enumeration of population, wealth and industry. It was a survey of the conditions of life, industry and production, such as cannot fail to be of great value to a rapidly growing nation, such as was peculiarly appropriate to the tenth decennial census, . . ." "Much of the work in them [the special reports] has been done once for all," etc. "I desire frankly to confess that while many noble results were obtained in this way [by special agents] between 1880 and 1883, which otherwise could not have been obtained at all, or only with greatly diminished value, this feature of the census law should undergo careful revision in a highly conservative spirit." *Quarterly Journal of Economics*, vol. ii, pp. 145, 157.

² The new superintendent has announced that where industries were fully treated in the tenth census, the only attempt will be to bring the information down to date. "The reports, however, which have been or may be selected to receive their first extended treatment in this respect, will be subject to such notice in the way of historical and philosophical research as may be justified by their importance and relation

edge to detect, from the relation to each other of the different items, capital, raw material, wages, *etc.*, that the return is false, and his business is to secure a correct one. He may labor for weeks in order to straighten out a single table; but in the end that single table will be of more value than any number of colored maps and picturesque diagrams based on the uncorrected returns. The census volumes will not be so "big," but they will be much more trustworthy.

To understand the grave responsibility which the census is incurring, let us consider the bearing of a few of these special investigations.

The census office has been directed to gather the statistics of mortgage indebtedness: to ascertain whether individuals own the farms or homes which they occupy and whether the homes and farms are encumbered or not. This inquiry is already under way, and will reveal the total mortgage indebtedness of the country, how much has been paid off, the rate of interest and the motive for incurring the mortgage (misfortune, purchase money, improvements). The real object of the inquiry is to throw some light on the condition of the occupiers of land in this country; and on the basis of this investigation, all sorts of propositions—for a single tax, for the taxation of mortgages, the relief of farmers, *etc.*—are likely to be made. What we want of the expert agents is not colored maps showing which part of the country is nominally most burdened with mortgages, but the most careful scrutiny of each record and the correction or rejection of all returns that are misleading or absurd.

Again, this census is to make an elaborate inquiry as to capital employed in manufactures (including both credit and cash capital) and as to other items in cost of production, such as rent, insurance and taxes. Capital and cost of production will thus be brought into contrast with the total value of articles produced and of wages paid. These questions involve the to the industrial progress of the nation, due regard being had to the obtainment of the most practical statistical results, combined with the highest considerations of true economy. . . ." Report to secretary of the Interior, Nov. 6, 1889, p. 18. It is safe to say that much of the history and most of the philosophy of the expert agents might be omitted without detriment.

problem of profits and wages, as well as the minor question of the prosperity of protected industries. It will undoubtedly happen that, for one purpose or another, attempts will be made to distort the returns. But the alteration of one item is very apt to throw it out of harmony with the others, and thus to reveal the fraud to the eye of the expert. It will depend on the fidelity and skill of the census officers if the returns are in any degree trustworthy. Other illustrations might be found in the statistics of wages, of railroads, telegraphs and shipping, as well as of many particular industries where the answer to great public questions depends upon correct and tested returns and presentations. But the above will suffice. It will be easy enough to show later whether the census has been equal to its work.

It may be thought, perhaps, that we are making unreasonable demands on officials who, after all, are but men. It is necessary to remember, however, that they have an unexampled opportunity, and that all we demand is technical skill and honest endeavor. The amount of money at their disposal is very generous,—ten times that appropriated by any other government for census purposes. The superintendent is practically uncontrolled in the choice of his assistants and subordinates. Some inquiries are forced upon him, but otherwise he has full discretion as to methods of work. If we had a little more of the old Roman or the modern Chinese severity in regard to public officials, we might say that if he through wilfulness or carelessness should neglect so great an opportunity, he should pay for it with his head. Without being so bloodthirsty as that, we will say that the men who are about to attach their names to the eleventh census are deliberately handing themselves down, so far as the scientific world is concerned, to eternal credit or discredit. For a census is so connected with the past and the present that it never dies. It is a chapter in the continued record of the nation's progress and, as history at least, it can never lose its interest. It lives forever.

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